

Development and Current Status of Korea Thermophysical Properties Databank (KDB)

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Physical property data, equilibrium data, and predictive models are essential parts of process design and operation. Such data are usually supplied in various forms of databases. DDB (Dortmund Data Bank – Gmehling *et. al.*, 1978) and DIPPR (Design Institute for Physical Properties - Daubert and Danner, 1985) are well known physical properties database for mixtures and pure components. With the advance of process engineering, the need for thermophysical properties and calculation modules is growing in Korea. Moreover, due to the growing importance of energy conservation, environmental consideration, safety regulation, and new materials, the demand from industry for new data and models is rapidly increasing. With the financial support of the Ministry of Commerce, Industry and Energy (MOCIE) of Korea, four universities collaborated to construct a thermophysical property databank and enhance their capability in experimental data production. In this paper, topics related to the construction and use of the thermophysical and equilibrium properties database are discussed. Currently, the databank contains about 4000 pure compounds (hydrocarbons, electrolytes and polymers) and 5000 equilibrium data sets. Most of the data were collected along with their accuracy of measurement or experimental uncertainties. Various estimation methods and thermodynamic models were included to calculate properties and phase equilibria. Data can be searched by a stand-alone program or on a internet website. The current status and prospects for the KDB (Korea thermophysical properties DataBank) are discussed.